

1. (Amended) A method for producing a high-alumina body at reduced sintering temperatures, comprising the steps of:

- A 2
- a) providing an alumina powder precursor;
 - b) adding water to the alumina powder precursor;
 - c) adding about 1-10 weight percent substantially water soluble magnesia powder precursor to the alumina powder precursor to make an aqueous green powder precursor;
 - d) mixing the aqueous green powder precursor;
 - e) drying the aqueous green powder precursor to obtain a green powder;
 - f) pressing a green body from the green powder;
 - g) removing residual moisture and organic material from the green body; and
 - h) firing the green body to about cone 13 to produce a high-alumina body.

7. (Amended) A method for producing a high-alumina body having enhanced chemical stability at reduced sintering temperatures, comprising the steps of:

- A³
- i) providing an alumina precursor;
 - j) adding about 1-10 weight percent substantially water soluble cation source to the alumina precursor;
 - k) mixing the alumina precursor;
 - l) forming the alumina precursor into a desired shape; and
 - m) firing the alumina shape to produce a substantially non-vitreous high alumina body;

wherein the cation source supplies a cation to the alumina precursor; and

wherein the cation is selected from the group consisting of magnesium and chromium.

19. (Amended) The material of claim 18 wherein the alumina shape is fired to about cone 13.

A⁴

20. (Amended) The material of claim 18 further comprising the step of between bb) and dd), adding an approximately 3 percent aqueous solution of carboxymethylcellulose; wherein the green body is fired in air; and wherein mixing is accomplished by wet ball milling with alumina media.